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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, VAN THU T

ART UNIT PAPER NUMBER

2824

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/729,865

Applicant(s)

CHEN ET AL.

Examiner

VanThu Nguyen

Art Unit

2824

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20, 22, 23 and 27-60 is/are pending in the application.
- 4a) Of the above claim(s) 2-20, 22, 23, 29-60 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. Acknowledgement is made for Amendment filed on 06/12/2006.
1. Claim 1, 27-28 remain under examination.
2. Claims 21, 24-26 are cancelled in Amendment filed 06/12/06.
3. Claims 2-20, 22-23, 29-60 are withdrawn from consideration.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,380,636 (Tatsukawa).

Regarding claim 1, Tatsukawa discloses an integrated circuit comprising a memory array (memory cell array MA, see FIG. 7) including memory cells arranged in a plurality of series-connected NAND strings (see FIG. 8), said memory cells comprising modifiable conductance switch devices (floating gate memory cells MC11-MC22, which are programmed by tunneling current), said NAND strings including at a first end thereof a respective plurality of series selection devices of like type (select transistors DG1 and SGD1 connected to the first end of the NAND string on the left, select transistors SGS2 and DG4 connected to the first end of the NAND string on the right, see FIG. 8), wherein each NAND string includes a second plurality of series selection devices of like type at a second end thereof (select transistors SGS1 and DG2 connected to the second end of the NAND string on the left, select transistors DG3 and SGS2

Art Unit: 2824

connected to the second end of the NAND string on the right, also see FIG. 8), and wherein pairs of NAND strings are arranged so that (pair of NAND strings shown in FIG. 8):

a first group of control signals couples to the respective second end of one string of the pair to a global array line associated with the pair, and couples the respective first end of the other string of the pair to a respective bias node (control signals SS1 and SD2 connecting NAND string on the right to the main bit line MBL, and NAND string on the left to a program inhibit voltage); and

a second group of control signals couples the respective first end of said one string of the pair to a respective bias node, and couples the respective second end of the other string of the pair to the global array line associated with the pair (control signals SS2 and SD1 connecting NAND string on the left to the main bit line MBL, and NAND string on the right to a program inhibit voltage).

(See column 13, line 17 to column 14, line 18)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsukawa in view of U.S. Patent No. 6,411,548 (Sakui).

Tatsukawa discloses, as applied in prior rejection of claim 1, all claimed subject matter except further limitations as set forth in claims 27-28.

Regarding claim 27, Sakui also discloses series selection devices having a charge storage dielectric (select gate transistors S1(s) having block insulating films 40SSL between the control gate 27SSL and charge storing layer 26SSL, see FIG. 44).

Since Tatsukawa and Sakui are both from the same field of endeavor, the purpose disclosed by Sakui would have been recognized in the pertinent art of Tatsukawa.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to implement the structure of select gate transistors substantially the same as that of each memory cells for the purpose of reducing the area of the chip and the manufacturing cost (see column 39, line 55 to column 40, line 6).

Regarding claim 28, Sakui further discloses series selection devices are maintained by periodic programming biasing to a higher threshold voltage than fabricated (see FIGS. 52-53).

Response to Arguments

8. Applicant's arguments with respect to claims 1, 27-28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

Art Unit: 2824

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VanThu Nguyen whose telephone number is (571) 272-1881. The examiner can normally be reached on Monday-Friday, 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

July 17, 2006



VanThu Nguyen
Primary Examiner
Art Unit 2824